

### REMARKS

Entry of the amendments is respectfully requested. Claims 1, 6-8, 12, and 13 have been amended. New claims 23-30 have been added. Claims 1-30 are pending in the application. Favorable reconsideration and allowance of this application is respectfully requested in light of the foregoing amendments and the remarks that follow.

1. Amendments to the Claims

Claim 6 has been amended to correct a typographical error therein. Specifically, "body" was replaced with "conduit." This amendment does not narrow the scope of the claim.

2. Rejections Based on the Prior Art

a. Recapitulation of the Invention<sup>1</sup>

The invention relates to a flow control that includes a conduit and a flow control washer disposed in the conduit between the conduit's inlet and the outlet. A gas inlet passage terminates in a gas inlet and opens into the conduit, preferably at a location just downstream of the flow control washer. The gas inlet permits a gas (typically ambient air) to enter a liquid stream flowing through the flow control washer. The admission of a gas into this liquid stream reduces noise generated by liquid flow through the flow

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<sup>1</sup> This Section 2a is intended to provide the Examiner with some background information on the state of the art and applicant's contribution to it. It is *not* intended to distinguish specific claims from the prior art. That task is performed in Section 2b-2c below.

control washer. Gas induction and noise reduction capabilities may be enhanced by admitting the gas fluid into a low pressure region of a venturi located in the conduit downstream of the flow control washer. The flow control is particularly useful in a wastewater drain of a water softener control valve, but is also useful in a variety of other applications. A method of reducing noise in a flow control is also provided.

b. Rejection Under § 102(b)

i. The Rejection of Claims 1-4, 6, and 13

Claims 1-4, 6, and 13 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,473,481 to Brane. The applicants respectfully traverse this rejection as it may be applied to amended claims 1 and 13. As is discussed below, the Brane patent does not disclose each and every element of the novel subject matter disclosed and set forth in amended claims 1 and 13. Therefore, reconsideration is in order and is respectfully requested.

The Brane patent discloses a venturi arrangement that includes a housing 10 which may correspond to a water-softening valve. The housing 10 has passage 11 extending therethrough and having a passage 12 opening thereinto. The passage 11 has a shoulder 15 against which a body 16 is seated. (col. 2, lines 20-28). The body 16 has a venturi passage or passages 20 and 21 formed therein. (col. 2, lines 37-38). The entire

passage through the body 16, including passages 20 and 21, form passage 50. (col. 2, lines 65-66).

Passage 50 includes a countersunk portion 60 within which is received a flexible resilient annular member 61, which has an opening 62 through the center thereof which varies in size depending upon the pressure of the liquid attempting to move through opening 62. (col. 3, lines 10-15).

Claim 1 has been amended to require:

a gas inlet passage being formed in said conduit and terminating in  
a gas inlet that is and being configured to permit a gas to flow into said gas  
inlet passage and enter said conduit between said inlet and said outlet.

Claim 1 has been further amended to require "wherein entrance of the gas attenuates noise generation that would otherwise occur through operation of said flow control washer."

In contrast to the flow control of amended claim 1, the passage 12 of Brane does not terminate in a gas inlet that is configured to permit a gas to flow into the gas inlet passage and enter the conduit between the inlet and the outlet, as amended claim 1 requires. Moreover, the Brane venturi does not have the property of "wherein entrance of a gas attenuates noise generation that would otherwise occur through operation of the

flow control washer," as amended claim 1 additionally requires. For at least these reasons, amended claim 1 is believed to be novel.

Dependent claims 2-4 and 6 are believed to be in condition for allowance for incorporating by reference the limitations of claim 1 and for defining additional features of the invention, which, when considered in combination with those of claim 1, are not disclosed by the prior art relied upon in the rejection.

For example, claim 6 requires "wherein said venturi is formed in said conduit." Brane does not disclose this additional limitation.

Independent claim 13 has been amended to require

wherein an ambient air inlet passage is formed in said conduit and terminates in an ambient air inlet that and is configured to permit ambient air to flow into said ambient air inlet passage and enter said venturi downstream of said inlet portion.

Claim 13 has been additionally amended to require "wherein entrance of the ambient air attenuates noise generation that would otherwise occur through operation of said flow control washer."

As should be clear from the discussion of claim 1, the passage 12 of Brane does not terminate in an ambient air inlet that is configured to permit ambient air to flow into the ambient air inlet passage, as amended claim 13 requires.

In light of the foregoing, withdrawal of the rejection of claims 1-4, 6, and 13 is respectfully requested.

ii. The Rejection of Claims 1-6 and 13

Claims 1-6 and 13 stand rejected under § 102(b) as being anticipated by U.S. Patent No. 4,221,335 to Shames. The applicants respectfully traverse this rejection because, as is discussed below, the Shames patent does not disclose each and every element of the novel subject matter disclosed and set forth the claims. Therefore, reconsideration is in order and is respectfully requested.

The Shames patent discloses a molded rubber flow controller part 10, an annular support 12 for part 10, shaped and constructed to cooperate with flow controller 10, and a cavitation noise reducer 14. The part 10 is shaped to provide an outermost, annular, sealing flange 20, a shaped cylindrical section 22 which projects upstream of flange 20 and then turns inwardly, and an upstream annular portion 23 having an innermost annular, deformable lip 24 that is not engaged by support 12 and bounds a central orifice 26.

The Examiner contends that 23' of Shames corresponds to a flow control washer of the claims. However, 23' does not refer to a flow washer that is configured to maintain a generally constant volumetric liquid flow rate through the flow control despite pressure fluctuations at the inlet of the conduit, as claim 1 requires. Instead 23' of Shames is an

upstream annular portion 23 of body 10. The portion 23' does not maintain a flow rate, as claim 1 requires the flow washer to do. There is no other part of the Shames device that corresponds to the flow washer of claim 1. Therefore, Shames cannot anticipate claim 1.

Dependent claims 2-6 are believed to be in condition for allowance for incorporating by reference the limitations of claim 1 and for defining additional features of the invention, which, when considered in combination with those of claim 1, are not disclosed by the prior art relied upon in the rejection.

For example, claim 3 requires the low pressure region to comprise a venturi. Claim 4 requires the gas inlet passage to open into a throat of the venturi. Claim 5 requires the gas inlet passage to open into a downstream portion of the venturi. Claim 6 requires the venturi to be formed in the conduit. Shames fails to disclose all of these additional requirements.

Independent claim 13 requires "a flow control washer that is disposed in said conduit between said inlet and said venturi, said flow control washer being configured to maintain a generally constant volumetric liquid fluid flow rate therethrough despite pressure fluctuations at said inlet of said conduit." As should be clear from the discussion immediately above, the Shames patent fails to disclose this type of a flow control washer.

In light of the foregoing, withdrawal of the rejection of claims 1-6 and 13 is respectfully requested.

c. Rejection Under § 103

i. The Rejection of Claims 9-10

The rejection of claims 9-10 as unpatentable over Brane is respectfully traversed, because, *inter alia*, there is no teaching or suggestion to modify the references to produce the claimed invention. MPEP §2143.01. The Examiner correctly recognizes that Brane fails to show the specific dimension of the aspirated passage as the claims require, but that it would have been an obvious design.

Claims 9 and 10 depend from amended claim 1. Even if the reference were modified as suggested by the Examiner, the invention would not result because of the base deficiency in Brane, that is, there would still be a lack of a gas inlet that is configured to permit a gas to flow into the gas inlet passage. In light of the foregoing, withdrawal of the rejection of claims 9 and 10 is respectfully requested.

ii. The Rejection of Claim 11

The rejection of claim 11 as unpatentable over Brane in view of U.S. Patent No. 5,301,718 to Bolhofner is respectfully traversed, because, *inter alia*, there is no teaching or suggestion to combine or modify the references to produce the claimed invention. MPEP §2143.01. Furthermore, even if the references were combined, the invention would not result. The Examiner correctly recognizes that Brane fails to show a one-way valve that is disposed in said gas inlet passage and cites Bolhofner to cure this deficiency.

Bolhofner discloses an apparatus 10 and process for metering a low-pressure fluid into a high-pressure fluid flow. The apparatus 10 is connected in fluid communication with a feed conduit 14, which includes an upstream side conducting water at a high pressure and high flow rate, and a downstream side 18 conducting a combination of (1) the water at high pressure and high flow rate and (2) car wash chemicals added to the water. (col. 3, lines 46-59).

The apparatus 10 includes a venturi pressure reducer assembly 22, a peristaltic pump 24, first and second lengths of hose 26, 28 communicating the pump 24 with the pressure reducer 22 and a supply of the car wash chemicals contained in a drum 30. (col. 3, lines 59-65).

A fluid inlet 52 is provided in one side of the reducer assembly 22. The inlet 52 intersects an annular chamber 44 of the reducer assembly 22 at the area of the chamber adjacent the exit of a nozzle 46 that is secured inside the annular chamber 44. A one-way check valve assembly 54 is secured in the fluid inlet 52. (col. 4, lines 40-45).

Like the Brane patent, the fluid inlet 52 of the Bolhofner patent admits a liquid, not a gas. Therefore, the Bolhofner patent suffers from the same deficiency that the Brane patent suffers, i.e., a lack of "a gas inlet passage being formed in the conduit and terminating in a gas inlet that is and being configured to permit a gas to flow into said gas inlet passage," as claim 11, which depends from amended claim 1, requires. Thus, even

though the Bolhofner patent teaches the inclusion of a check valve, it is not disposed in the gas inlet passage that terminates in a gas inlet, as claim 11 requires.

In light of the foregoing, withdrawal of the rejection of claim 11 is respectfully requested.

3. Restriction Requirement

Examiner Cintins, the examiner previously in charge of this application, had restricted the claims into two groups of claims. Group I included claims 1-14 and 16-22. Group II included claim 15. Group I was provisionally elected with traverse. Examiner Cintins indicated that the file was going to be transferred to another group for handling by a different Examiner. Due to the fact that there is currently no restriction requirement in the Office Action, and that claims 14-22 are allowed, which include the non-elected claim 15, the applicant understands that the restriction requirement is now moot.

4. Allowed Claims and Allowable Subject Matter

The applicant gratefully acknowledges the indication that claims 7-8 and 12 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 7-8 and 12 have been so rewritten.

The applicant also acknowledges the indication that claims 14-22 are allowed.

5. New Claims

New claims 23-30 have been added. New claim 23 depends from claim 1 and further requires " wherein the flow control washer has an aperture that varies in size with fluctuations in supply pressure so as maintain a generally constant volumetric liquid flow rate therethrough despite pressure fluctuations at said inlet of said conduit." Claim 23 is believed to be allowable for the reasons that claim 1 is believed to be allowable and for defining additional features of the invention.

New claim 24 recites a flow control and requires "means, communicating with said conduit, for attenuating noise generation that would otherwise occur through operation of said flow control washer by admitting a gas into said conduit." Claim 24 is believed to be allowable for at least the reasons that method claim 16 is allowed. Method claim 16 requires, *inter alia*, "(C) attenuating noise generation that would otherwise occur through operation of said flow control washer by admitting a gas into said conduit." Claims 25-30 depend from claim 24 and are believed to be in condition for at least the reasons that claim 24 is believed to be in condition and for defining additional features of the invention, which, when considered in combination with those of claim 24, are not disclosed by the prior art relied upon in the rejection.

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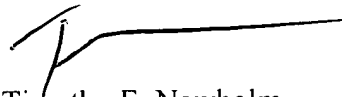
CONCLUSION

It is submitted that original claims 1-22 are in compliance with 35 U.S.C. §§ 102 and 103 and each define patentable subject matter. New claims 23-30 are also believed to be allowable. A Notice of Allowance is therefore respectfully requested.

Enclosed is a check for \$244 in payment by a small entity for eight additional claims and four independent claims. No other fee is believed to be payable with this communication. Nevertheless, should the Examiner consider any other fees to be payable in conjunction with this or any future communication, authorization is given to direct payment of such fees, or credit any overpayment to Deposit Account No. 50-1170.

The Examiner is invited to contact the undersigned by telephone if it would help expedite matters.

Respectfully submitted,



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